NHDES-W-06-012

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No. Check No. Amount Initials

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the Determine if Mitigation is Required Frequently Asked Question.

Mitigation Pre-Application Meeting Date: Month: __ Day: __ Year: ____

☐ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: **US Rte. 302 / NH Rte. 113 over Conway Lake Outlet**			TOWN/CITY: **Conway**
TAX MAP:	BLOCK:	LOT:	UNIT:

USGS TOPO MAP WATERBODY NAME: **Conway Lake Outlet** ☐ NA STREAM WATERSHED SIZE: **23.38 sq. mi** ☐ NA

LOCATION COORDINATES (If known): **43.99, -71.04** ☒ Latitude/Longitude ☐ UTM ☐ State

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

Br # 158/137, US 302 over Conway Lake Outlet: Replacement of the existing 105 foot long, 3 span reinforced concrete T-beam structure with a 120 foot long, single span multi-girder steel structure. Remove existing stub abutments and concrete column bent piers to three feet below existing streambed surface and replace with reinforced concrete stub abutments on piles integral with the bridge superstructure.

5. SHORELINE FRONTAGE:

☒ NA This does not have shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Web Page.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **17** - **3670** .

b. ☐ Designated River the project is in ¼ miles of: _____ ; and date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____

☒ N/A

8. APPLICANT INFORMATION (Desired permit holder)		
LAST NAME, FIRST NAME, M.I.: **David Scott**		
TRUST / COMPANY NAME: **NHDOT, Bridge Design**	MAILING ADDRESS: **7 Hazen Drive**	
TOWN/CITY: **Concord**	STATE: **NH**	ZIP CODE: **03302**
EMAIL or FAX: **anthony.weatherbee@dot.nh.gov**	PHONE: **603-271-3226**	
ELECTRONIC COMMUNICATION: By initialing here: DLS, I hereby authorize NHDES to communicate all matters relative to this application electronically.		

9. PROPERTY OWNER INFORMATION (If different than applicant)		
LAST NAME, FIRST NAME, M.I.:		
TRUST / COMPANY NAME:	MAILING ADDRESS:	
TOWN/CITY:	STATE:	ZIP CODE:
EMAIL or FAX:	PHONE:	
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.		

10. AUTHORIZED AGENT INFORMATION		
LAST NAME, FIRST NAME, M.I.:	COMPANY NAME:	
MAILING ADDRESS:		
TOWN/CITY:	STATE:	ZIP CODE:
EMAIL or FAX:	PHONE:	
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.		

11. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
David L Scott	David Scott	3/20/18

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨ Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

14. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland	66	☐ ATF	160	☐ ATF
Scrub-shrub wetland		☐ ATF		☐ ATF
Emergent wetland		☐ ATF		☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF		☐ ATF
Perennial Stream / River	335 / 72	☐ ATF	5366 / 151	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	1704 / 223	☐ ATF	3507 / 195	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
Vernal Pool		☐ ATF		☐ ATF
TOTAL	2105 / 295		9033 / 346	

15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200

☑ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) **11138** sq. ft. X $0.20 = $ **2227.60**

Temporary (seasonal) docking structure: _____ sq. ft. X $1.00 = $ _____

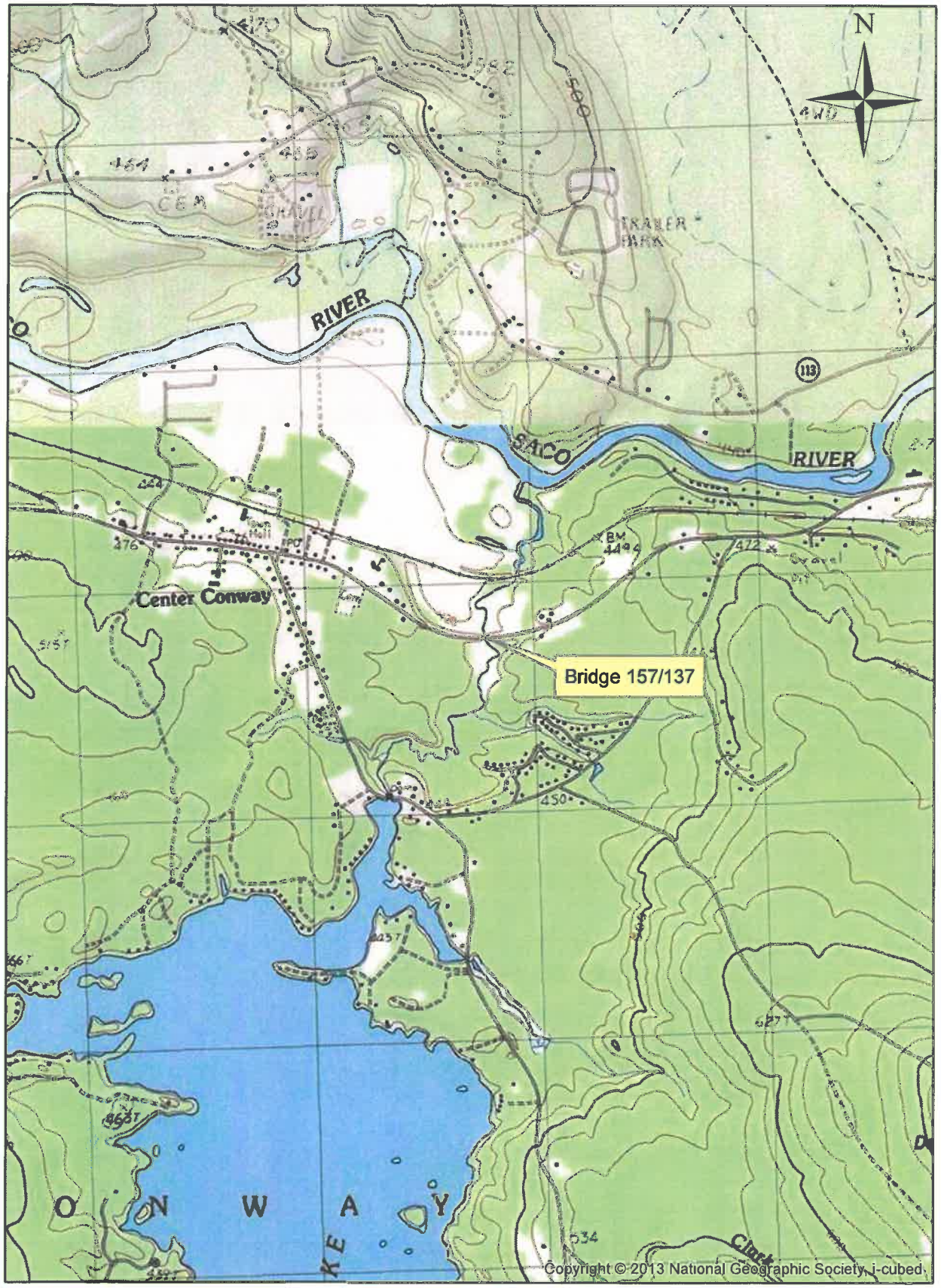
Permanent docking structure: _____ sq. ft. X $2.00 = $ _____

Projects proposing shoreline structures (including docks) add $200 = $ _____

Total = $ **2227.60**

The Application Fee is the above calculated Total or $200, whichever is greater = $ **2227.60**

USGS Conway, NH Topo Map



1:24,000

0 0.25 0.5 1 Miles

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management
Wetlands Bureau

Check the Status of your application: www.des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The existing structure is on the state Red List due to the poor condition of the superstructure and substructure. The structure has outdated geometry and deterioration is too severe to allow for a rehabilitation. The structure needs to be replaced and if deterioration is allowed to progress, eventually the structure will become unsafe and the road will need to be load posted or closed. A limited amout of riprap beyond the existing riprap is required to stabilize the proposed abutments. It is necessary to impact jurisdictional areas to provide for the bridge replacement, for installing riprap, and for construction access.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

The following alternatives were considered:

Rehabilitate the structure- This alternative was considered but not chosen for two major reasons. The first is that both the substructure and superstructure are so far deteriorated that there is not enough of the existing structure in good condition to make rehabilitation feasible. The second is that the concrete T-beam superstructure does not lend itself well to rehabilitation due to structual reasons. Rehabilitating and reusing the existing superstructure would not allow for removal of the two piers in the waterway, and it would not allow for a longer span to be constructed.

Replace the structure- This chosen alternative proposes the least amount of environmental impacts because the piers can be removed from the waterway (to three feet below existing streambed surface) and the structure can be lengthened. This alternative also takes advantage of the existing riprap by reusing what is there and adding a limited amount more to protect the new abutments. If the structure were to be built in an entirely new location, then all new riprap would have to be installed and therefore impacts would increase. Maintaining traffic over the existing structure during construction will also impact the wetlands less than building a temporary bridge offline. Additionally, the proposed design exceeds the reccomended compliant design span. The new structure will be a 120' single span, the reccomendation to be compliant is only 71'.

3. The type and classification of the wetlands involved.

R2UB1H: Riverine, lower perennial, unconsolidated bottom, cobble-gravel, permanently flooded

PFO1/PSS1E: Palustrine, forested, broad-leaved deciduous / Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated

Bank

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

Conway Lake Outlet begins at Conway Lake and flows into the Saco River.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

Conway Lake Outlet has not been identified as a rare surface water of the state.

6. The surface area of the wetlands that will be impacted.

5701 ft2 Riverine (5366 ft2 temporary, 335 ft2 permanent)

226 ft2 Palustrine (160 ft2 temporary, 66 ft2 permanent)

5211 ft2 Bank (3507 ft2 temporary, 1704 ft2 permanent)

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

a. There are no known rare or special concern species located in the project area.

b. The NH Natural Heritage Bureau reviewed the proposed work and confirmed that there are no known records of State or federally listed threatened or endangered species in the vicinity of the project area. The US Fish and Wildlife Service (USFWS) Information for Planning and Conservation Tool was used to determine that the project area is located in the range of the federally threatened northern long-eared bat (NLEB). The proposed work is consistent with activities included in the FHWA, FRA, FTA Programmatic Consultation for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat. Consultation was completed through the IPAC streamlined determination key and the USFWS concurred that proposed project may affect but is not likely to adversely affect NLEB with the implementation of applicable avoidance and minimization measures, including time of year restrictions on tree clearing, as detailed in the Programmatic Consultation.

c. No species at the extremitites of their ranges have been identified in the project area.

d. There are no anticipated impacts to migratory fish or wildlife species associated with the proposed work.

e. The NHNHB did not identify any exemplary natural communities in the project area.

f. There were no vernal pools identified and/or delineated within the project area.

8. The impact of the proposed project on public commerce, navigation and recreation.

During construction, access to the nearby residents and/or commercial businesses will be maintained at all times. Access will be maintained with two lanes of traffic. Conway Lake Outlet is non-navigable water which makes it non-conducive to boaters. There are no recreational areas that have been identified in this area except for the possibility for fishing. During construction fishing activities from the banks of the brook will need to occur outside of the construction work zone. When construction is completed, the project as proposed will be a benefit to the public commerce.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The project will not significantly interfere with the aesthetic interests of the general public. Public input has been received through the public meeting process and comments have been incorporated into the project. The proposed improvements will be more pleasing to the eye than the structure in poor condition.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The project will not interfere with or obstruct public rights of passage or access. During construction two way traffic will be maintained at all times. This will ensure access to all nearby businesses and residential homes in this area.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The project is expected to have a positive impact on abutting properties. The rehabilitated structure will better serve the abutting properties if they need to travel on the road. The riprap that is being installed will prevent a washout of the structure which will better protect abutting properties.

The project as proposed will not alter the chance of flooding on abutting properties.

12. The benefit of a project to the health, safety, and well being of the general public.

The project will provide a safer, longer lasting structure and roadway. If the structure is not rehabilitated, the bridge will eventually be load posted or closed. Keeping the roadway open benefits commerce, trade, emergency access, etc, for the general public.

13. The impact of a proposed project on quantity or quality of surface and groundwater. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

A drainage ditch will be construction on the NW side of the structure to collect stormwater. The discharge location is approximately 40 feet downstream of the structure. Best Management Practices will be used to prevent any adverse effect to water quality during construction. The Contractor will be required to submit a SWPPP, which will be strictly followed to maintain water quality during construction.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

Flooding: The structure can pass the 100 year storm event. The project will not increase flooding.

Erosion: The riprap placed around the structure will prevent erosion and preserve the natural alignment and gradient of the stream channel. Removing the piers to three feet below existing streambed surface will reduce the potential for erosion in the streambed.

Sedimentation: Nothing that will be a barrier to sediment transport will be installed in this project. Sedimentation in the open channel will not be caused as a result of this project.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

Surface waters will not be reflected or redirected as a result of this project. There is not enough wave energy to be an issue. The two bridge piers in the streambed will be removed.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

The work consists of a replacement of an existing bridge structure. There are no similar structures in the vicinity owned by other parties that would require repair.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

The value of the wetland as a habitat for living organisms will be unchanged. A function of the wetland is to carry water from a higher elevation to a lower elevation. This project will not interfere with that function.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

This project is not located in or near any Natural Landmarks listed on the National Register.

19. The impact upon the value of areas named in acts of Congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

There are no areas named in acts of congress or presidential proclamations as national rivers, national wildness areas, or national lakeshores that will be impacted as a result of this project.

20. The degree to which a project redirects water from one watershed to another.

The project as proposed will not redirect water from one watershed to another.

Additional comments

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: December 21, 2011
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Kevin Nyhan
Christine Perron
Marc Laurin
Bob Landry
Mike Dugas
David Scott
Darrel Elliott
Bob Juliano
Bill Saffian
Tim Mallette
Kevin Russell
Wayne Roswell
Carol Niewola

FHWA
Jamie Sikora

EPA
Mark Kern

USFWS
Maria Tur

NHDES
Gino Infascelli
Lori Sommer

National Marine Fisheries Service
Mike Johnson
David Bean (via conf call)

NH Fish and Game
Carol Henderson

Central NH RPC
Mike Tardiff
Nik Coates

HNTB
Kevin Slattery
Jim Fisher

Archer Western
Brent Mawdsley
Stephen DelGrosso

McFarland-Johnson
Darren Benoit
Vicki Chase
Jeff Santacruce
Jed Merrow

FST
Steve Riesland
Dave McNamara

Smart Associates
Jennifer Riordan

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

This project was previously reviewed on the following dates: 9/15/2004, 9/21/2005, 5/16/2007, 1/16/2008, 11/19/2008, 3/17/2010, 10/20/2010, 4/20/2011, 6/15/2011.

Plymouth, X-A001(161), 15882A

Bill Saffian provided an overview of the project. The project is located at the bridge carrying NH Route 25/3A over the Baker River. The project was originally part of the Plymouth 15882 contract, which consisted of bridge rehabilitation including replacement of the deck, shoes, and expansion joints, and cleaning and painting structural steel. The subject project was split off from the original contract and includes scour mitigation. Work will consist of the placement of riprap on the inside faces of the two bridge piers. Access will be from the SW quadrant. A temporary stone causeway will be needed to access the far pier. Total wetland impacts will be 4,150 sq. ft. permanent and 10,200 sq. ft. temporary.

Carol Henderson asked about the timing of the proposed work and said that brook trout would be spawning in the river in the fall. B. Saffian replied that work would be carried out during the summer and fall of 2012. He suggested that pipes could be installed in the causeway to allow for fish passage during constructed. Gino Infascelli said that he would like to see pipes in the causeway. C. Henderson explained that her concern was with spawning activity and destruction of eggs in the substrate of the river bottom. She asked if it would be possible to finish the work by September 1st to avoid spawning season (approximately September 1 to October 31, although it depends on weather and water temperature). B. Saffian and David Scott explained that it probably would not be possible to finish by September since the project will not advertise until June 2012 due to right-of-way issues. G. Infascelli asked about the possibility of using the Plymouth water and sewer easement to reduce right-of-way involvement. This, however, had been explored but would not result in less time spent on the right-of-way process. Mark Kern asked if it would be possible to do the work the following spring and summer. D. Scott said that the Department prefers not to award a contract and then make the contractor wait a long period of time before starting work. C. Henderson suggested blocking off areas of permanent impact with sandbags or turbidity curtains to prevent fish from spawning in those areas prior to construction. Christine Perron stated that the Department would look into ways to minimize impacts to spawning trout, either by adjusting the work schedule or by blocking off the work area. The permit application would be submitted within the next week.

M. Kern did not object to the project qualifying for coverage under the NH PGP.

This project was previously reviewed on the following dates: 5/19/2010

Conway, X-A001(161), 15864

Kevin Nyhan discussed this project, which consists of the replacement of the bridge that carries US Route 302 over the Conway Lake Outlet. A bridge type and size has not yet been selected, but will generally be the same length or longer, without piers in the river.

The Department completed an assessment of this Tier 3 crossing this summer. The existing bridge is 105' long, with a bankfull width of 40', a slope of approximately 0%, and a sandy substrate. There are currently piers located in the river. Data at an upstream reference reach generally match the conditions at the crossing. Due to the similarities in streams at the crossing and in the reference reach, and the inaccessibility of the reference reach without a boat, a longitudinal profile was not collected.
Kevin Nyhan asked if this were enough information to comply with the Stream Crossing Rules given the compatibility of the site with the reference reach and the fact that a replacement bridge would be as long as or longer than the existing. Gino Infascelli indicated that with a 0% slope the design can proceed without collection of a long profile. The system is generally flat, with good access to a broad floodplain and the

absence of stream features such as riffles and pools. G. Infascelli asked what the toe-of-slope to toe-of-slope distance was under the bridge. It is approximately 45'.

Lori Sommer asked if there would be any work on the slope. Bill Saffian responded that there would be some disturbance. L. Sommer then asked if there would be a terrace for land based wildlife to cross under the roadway. K. Nyhan responded that the Department would look into it, but generally speaking it could be incorporated. Currently at low flows there is some dry ground under the bridge on either side of the watercourse.

G. Infascelli indicated that it appears that with the 105' long bridge, the structure may have room to move back or modify the embankment to meet the requirement for a structure to be 1.2 x bankfull width, plus 2'.

K. Nyhan indicated that the Department would present the project again once additional information is gathered on the proposed replacement structure.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Loudon, 16188 (non-Federal)

The purpose of this presentation was to re-introduce resource agency staff to the project, update them on its status, describe the approach and likely impacts, and get agency feedback. McFarland Johnson staff gave a brief history of the project starting with the 1994 Public Hearing and 1995 Environmental Assessment and ending with the current corridor study. The 1995 EA, based on traffic growth trends and anticipated future growth, had proposed an ultimate typical section of four lanes with a wide median, resulting in a total paved width of 92'. A reevaluation of how traffic has actually grown in the intervening years has concluded that volumes are less than had been anticipated in the 1995 EA, and that the 1995 ultimate typical section is not warranted for the foreseeable future. An interim typical section that would retain the existing two through lanes and widen the highway for 12' shoulders and a 16' median lane is now proposed and would provide operational and safety benefits. The current footprint of the project was created by superimposing the proposed 3-lane cross section (64 foot width of pavement) onto the existing horizontal and vertical alignment of Route 106. McFarland Johnson (MJ) explained that there are three areas where the proposed alignment would deviate from the existing alignment in order to reduce the impacts to environmental or cultural resources. These resources are the Soucook River (near Wales Bridge Road), Shaker Brook and the Lovering Mill Site (near Clough Pond Road), and an unnamed pond adjacent to Clough Hill Road. The key resource issues associated with this project are wetlands, stream crossings, wildlife habitat, and water quality.

MJ indicated that the project would impact approximately 5 acres of wetlands of which 0.5 acre is stream and river areas and 0.4 acre is vernal pools. The total amount of impacts may change as the stream crossings and BMPs are further analyzed. The impacts to the vernal pools consist of two or three areas, with the biggest impact to one pool that is parallel to the roadway.

MJ indicated that as part of this project they are looking at the corridor to identify potential wetland mitigation sites, but that there will be neither final decisions on locations nor any design of the sites as part of the current phase of the design. This area has several gravel pits that could be potential mitigation sites; however, most of them are still in active use.

MJ gave an overview of the stream crossings, noting that there are six Tier 3 crossings, four Tier 2 crossings, and three Tier 1 crossings within the corridor. MJ went on to further discuss the Tier 3 crossings with photographs and plans and suggested that the improvement of some of these crossings could be part of the wetland mitigation for the project.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: May 21, 2014
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Christine Perron
Ron Crickard
Bob Landry
Pete Stamnas
Steve Liakos
David Scott
Mark Hemmerlein
Charles Blackman
Bill Saffian
Phil Brogan

Federal Highway Administration
Jamie Sikora

Army Corps of Engineers
Michael Hicks

NHDES Wetlands Bureau
Gino Infascelli

NH Fish & Game
Carol Henderson

NHDES Watershed Management Bureau
Ted Diers

NHDES Dam Bureau
Chuck Corliss

McFarland Johnson
Vicki Chase
Josh Lund

Provan & Lorber
Timothy Grant

Normandeau Associates
Jameson Paine
Rick Simmons

Hoyle, Tanner & Associates
Matt Low

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

diagram in the handout, but without any headroom. The proposed twenty-four foot span would have clear cover for even the calculated Q500 flow volume.

M. Hicks asked if there a check of the Federal list of Endangered Species. T. Grant stated that the NH Natural Heritage Bureau reviewed their database and returned a letter of no endangered species in the vicinity of the project. M. Hicks asked if the Natural Heritage Bureau report included the small whorled pogonia. T. Grant commented that it was not listed in the report. M. Hicks noted that the US Fish & Wildlife Service IPaC website should be reviewed in addition to coordination with NH Natural Heritage Bureau.

Carol Henderson asked if the proposed structure would have an open bottom. T. Grant replied that the plan is to provide a stream bottom similar to the existing natural waterway.

C. Henderson asked if there was a plan for the land where the existing road will be abandoned. T. Grant said that there has been some discussion with the landowner (the Warner Fish & Game Club) about using it for a gravel parking area, but there is no specific plan in place at this time.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Conway, X-A001(161), 15864

Bill Saffian provided an overview of the project. The project proposes to replace Conway Bridge 158/137, which carries US Route 302 over Conway Lake Outlet. The bridge, constructed in 1955, is a 3-span concrete T-beam with a total length of 105'. The bridge has an out-to-out width of 33'. The bridge has two column bents, each with 3 columns with dimensions of 2' by 2'. The overall condition rating of the deck, superstructure, and substructure is 4, and the bridge is on the NHDOT Red List. The width of the channel under the bridge (from OHW to OHW), and the bankfull width, is approximately 40'. The width of the streambed under the bridge (from toe of slope to toe of slope) is 33'.

The Department is proposing a single span bridge located approximately 20 feet to the north of the existing bridge. The proposed bridge would be 43' wide with a span of 120'. Construction would be completed in three phases. The existing piers would be removed to 2' below the streambed. The stone slopes would be retained, and additional stones would be added to the north. The shelf would be constructed in the stone at each abutment at approximately elevation 420'.

The project will result in a total disturbance area of 102,743 sq.ft. The existing area of impervious surface is approximately 1.03 acres. The project as proposed would result in 1.176 acres of impervious surface, a net increase of 0.14 acres. A drainage swale for treatment of stormwater runoff is proposed to the west of the bridge on the north side of the road. Runoff from approximately 0.37 acres of pavement will be directed to this swale.

At this time, preliminary wetland impacts are expected to be approximately 1,555 sq ft of permanent bank impact, 164 sq ft of temporary bank impact, 378 sq ft of permanent channel impact, 203 sq ft of temporary channel impact, and 59 sq ft of permanent wetland impact. Overall impacts total approximately 2,895 sq ft of both permanent and temporary impact (this total was shown incorrectly on the meeting handout). The total length of impacts would be approximately 90 linear feet of impact to banks and 40 linear feet of impact to the channel.

Christine Perron asked Gino Infascelli if the proposed impacts could be considered protection of infrastructure and would therefore be exempt from mitigation. G. Infascelli responded that only the

protection of existing infrastructure could be exempt from mitigation requirements and that any impacts resulting from new construction would require mitigation since this would be a major impact project as a Tier 3 stream crossing.

G. Infascelli asked if the clear span would be increasing. B. Saffian replied that the span of the bridge would be increasing but the existing stone under the bridge would remain the same. G. Infascelli asked if any of the stone on the south side of the bridge could be removed to revegetate the bank on that side. B. Saffian stated that removal of stone was not planned since it is currently stable and in good condition.

Carol Henderson asked if the proposed shelf in the stone for animal crossing could be placed lower. B. Saffian explained that doing so would increase impacts since it would require removal of existing stones. G. Infascelli noted that this type of animal crossing is usually at the top of bank. Both he and C. Henderson noted that they understood the reasoning behind the proposed location of the shelf given the good condition of the existing stone and the concern with excavating the stone out just to incorporate a wildlife crossing in a more beneficial location. However, they didn't think the shelf as currently proposed would be beneficial to wildlife since wildlife is more likely to stay in vegetated areas, which in this case extend up to the roadway and not up to the proposed shelf. C. Henderson further commented that if there was a way to increase vegetation in the vicinity of the shelf, this may encourage wildlife to use it.

C. Perron stated that the Department would determine if any improvements could be made to wildlife passage. The project would return to a future meeting to discuss this issue, as well as wetland mitigation.

This project was previously reviewed on the following dates: 12/21/2011.

Lebanon, NH-Hartford, VT, A001(154), 16148

This project involves the rehabilitation of the I-89 bridges over the Connecticut River. Vicki Chase from McFarland Johnson introduced the project. The river is approximately 500 feet wide at the location of the bridge with a watershed of over 4,000 square miles, extending into Canada. The border between New Hampshire and Vermont is the low water line on the Vermont side, so the river lies entirely within New Hampshire. The New England Central railroad parallels the river on the Vermont side – the rail line is a linear historic district and an active rail line.

Josh Lund from McFarland Johnson described the existing bridges, which each have six spans with four piers in the water and one on land (in Vermont). Piers are on piles that range from 60-120 feet deep. One pier rests on ledge. Borings will be conducted at the end of June to confirm the depth of ledge. The existing bridges are on the red list for deck and superstructure issues. The superstructures are proposed to be replaced and the bridges will be widened to fill the space between the bridges, with associated approach work. New piers and abutments are proposed between the existing foundations to support the widened superstructure. The project will be phased so that two lanes of traffic are maintained on both the northbound and southbound sides, with the new sections constructed between, and then traffic will be directed to the new center sections so that each side can be rehabilitated.

Jamie Sikora asked if the bridge would accommodate the weave lanes that may be required for I-91. Bob Landry said that a merge lane is required for the transition from I-91 NB to I-89 SB, which is currently substandard. The configuration of the weave lanes on the NB side has not been decided yet.
B. Landry noted that during the engineering study phase the option of not constructing any piers in the water was studied but it was not feasible structurally.

V. Chase reviewed natural resources. The river is well vegetated on both sides, and there are floodplain and regulatory floodways on both sides. There are some rare species and McFarland Johnson has started

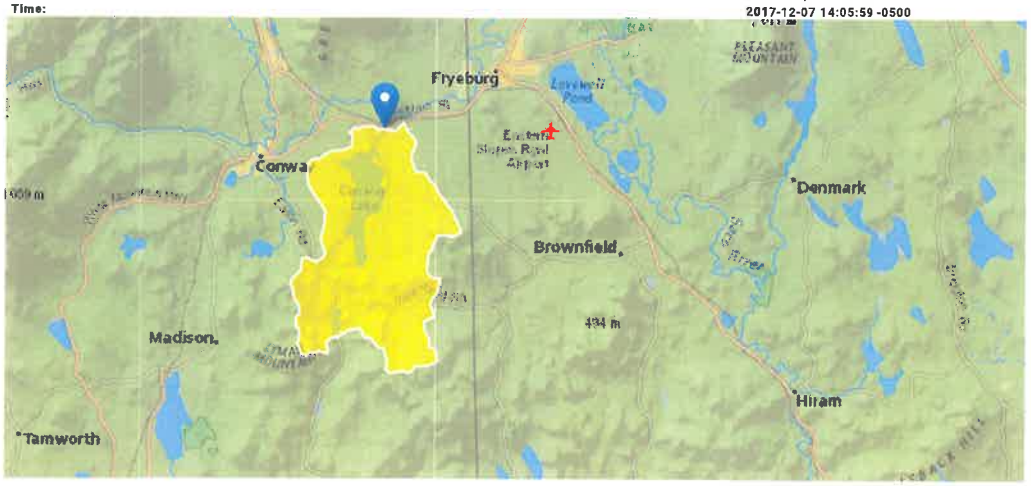
Conway 15864

Mitigation Summary Report

The proposed work has been designed to meet the requirements of Env-Wt 904.05 and 904.01. The existing 105 foot long, 3 span structure, is being replaced with a new 120 foot long single span structure that meets the NH Stream Crossing Guidelines. The existing piers will be removed from the channel and cut 3 feet below the streambed surface. The permanent impacts to the bank and channel are necessary to construct the new structure and remove the old bridge abutments and piers. In accordance with Env-Wt 904.04(f)(1) compensatory mitigation is not proposed for this project.

Conway 15864, 157/137

Region ID: NH
Workspace ID: NH20171207190542347000
Clicked Point (Latitude, Longitude): 43.99175, -71.04743
Time: 2017-12-07 14:05:59 -0500



Bridge replacement

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	23.38	square miles
CONIF	Percentage of land surface covered by coniferous forest	23.5776	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	8.86	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	10.592	percent
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	48.3156	percent
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	9.8	inches
TEMP	Mean Annual Temperature	42.801	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	59.454	degrees F
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	19.1	inches
ELEVMAX	Maximum basin elevation	1631.596	feet
SNOFALL	Mean Annual Snowfall	93.535	inches
PREBC_1112	Mean annual precipitation of basin centroid for November 1 to December 31 period	9.33	inches
PRECIPCENT	Mean Annual Precip at Basin Centroid	47.5	inches
PRECIPOUT	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)	46.9	inches
MINTEMP_W	Mean winter minimum air temperature over basin surface area	9.678	degrees F
APRAVPRE	Mean April Precipitation	4.185	inches
WETLAND	Percentage of Wetlands	12.8534	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	35.1	feet per mi

Seasonal Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	23.38	square miles	3.26	689
CONIF	Percent Coniferous Forest	23.5776	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	8.86	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	10.592	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	48.3156	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	9.8	inches	6.83	11.5

NH Department of Transportation
Bureau of Bridge Design
Project, # 15864

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings
New Tier 2 Crossings;
Replacement Tier 2 Crossings that have a history of flooding;
New & Replacement Tier 3 Crossings

Please describe how the project meets the following criteria:

(a) The crossing shall be designed in accordance with the NH Stream Crossing Guidelines.

The full span as proposed by the NH Stream Crossing Guidelines is 71'-11". This span is exceeded by the proposed 120' span.
The existing stream slope and alignment will be matched.
The existing stream bed bottom is currently a natural bottom and the proposed stream bed bottom will be a natural bottom also Existing channel material will be regraded over where the existing piers were after they are removed from the wetland areas.
Wildlife will have extensive flat and dry area above the water on both sides of the waterway below the structure to accommodate passage. The slopes under the structure will match the existing banks upstream and downstream of the structure.
The proposed structure will maintain the flow depths found in the natural channel.

(b) The design shall include bed forms and stream bed characteristics necessary to cause water depths and velocities within the crossing at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the crossing.

Bed forms and stream bed characteristics will match the natural channel found upstream and downstream of the structure. This will cause water depths and velocities within the crossing at a variety of flows to be comparable to those found in the natural channel.

(c) There shall be vegetated banks upstream and downstream of the crossing.

The banks upstream of the crossing will not be altered as a result of this project. Bridge widening downstream will necessitate changing some vegetated bank. Upon completion of the project, areas disturbed within the temporary impacts areas will be revegetated. Hummus and seed will be provided 2' above OHW.

(d) The natural alignment and gradient of the stream channel shall be preserved so as to accommodate natural flow regimes and the functioning of the natural floodplain.

The natural alignment and gradient of the stream channel shall be preserved so as to accommodate natural flow regimens and the functioning of the natural floodplain.

(e) The 100-year flood frequency shall be accommodated to ensure that there is (1) no increase in flood stages on abutting properties and (2) flow and sediment transport characteristics will not be affected in a manner that could adversely affect channel stability.

The 100-year flood frequency shall be accommodated by the larger proposed span. Removing the piers to three feet below the existing streambed surface will decrease the likelihood of debris accumulation causing a flooding condition on abutting properties. Flow and sediment transport characteristics will be improved by removing the piers.

(f) A natural stream channel shall be simulated through the structure.

The existing stream bed is natural through most of the crossing except for the locations of the existing piers. Removing the piers will bring the stream closer to a completely natural state as existing channel material will be graded over the pier removal locations to create a consistent natural stream bed throughout the entire crossing.

(g) Sediment transport competence shall not be altered.

Sediment transport competence will be improved to a more natural condition by removing the piers from the streambed.

A Tier 2 stream crossing shall be a span structure, pipe arch embedded with stream simulation, open-bottom culvert with stream simulation, or closed-bottom culvert embedded with stream simulation.

A Tier 3 stream crossing shall be a span structure or an open-bottom culvert with stream simulation.

If any of the above criteria cannot be met, approval for an alternative design must be requested and a technical report (Env-Wt 904.09) must be included with the application package.

New Hampshire Natural Heritage Bureau

To: Anthony Weatherbee
7 Hazen Drive
Concord, NH 03302

Date: 12/8/2017

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 12/8/2017

NHB File ID: NHB17-3670 Applicant: Anthony Weatherbee

Location: Tax Map(s)/Lot(s):
Conway

Project Description: Replacement of the existing 105 foot long, 3 span reinforced concrete T-beam structure with a 120 foot long, single span multi-girder steel structure. Remove existing stub abutments and concrete column bent piers and replace with reinforced concrete stub abutments on piles integral with the bridge superstructure.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

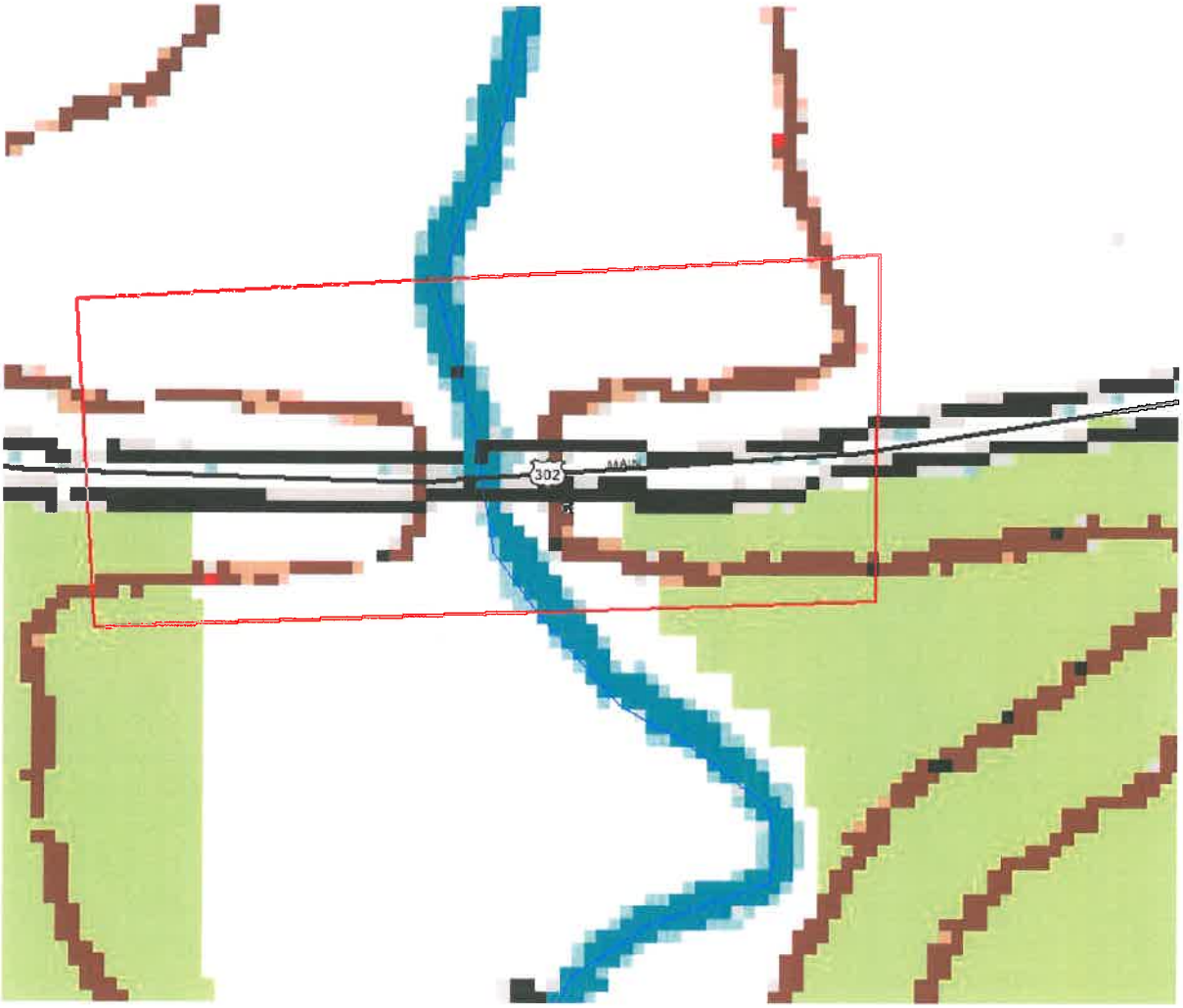
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 12/7/2018.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB17-3670



Department of Resources and Economic Development
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DRED/NHB
172 Pembroke Road
Concord NH 03301

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-0918
Event Code: 05E1NE00-2018-E-02111
Project Name: Conway 15864

February 07, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-0918

Event Code: 05E1NE00-2018-E-02111

Project Name: Conway 15864

Project Type: TRANSPORTATION

Project Description: Replacement of Bridge 158/137 carrying US Route 302 over Conway Lake Outlet in the Town of Conway. The proposed project will include 3-phased construction with the new bridge installed 20' to the north of the current location and subsequent roadway approach adjustments extending approximately 700' on each side of the bridge.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.99191141255799N71.04729306852113W

Counties: Carroll, NH

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
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http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2018-I-0918
Event Code: 05E1NE00-2018-E-02280
Project Name: Conway 15864

February 16, 2018

Subject: Concurrence verification letter for the 'Conway 15864' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated to verify that the **Conway 15864** (Proposed Action) may rely on the concurrence provided in the February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, may affect, but is not likely to adversely affect (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*).

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do not notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO.

For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities: If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required. If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

Conway 15864

Description

Replacement of Bridge 158/137 carrying US Route 302 over Conway Lake Outlet in the Town of Conway. The proposed project will include 3-phased construction with the new bridge installed 20' to the north of the current location and subsequent roadway approach adjustments extending approximately 700' on each side of the bridge.

Determination Key Result

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   Automatically answered
   No

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   Automatically answered
   Yes

3. Which Federal Agency is the lead for the action?
   A) Federal Highway Administration (FHWA)

4. Are *all* project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   No

6. Does the project include *any* activities **within** 0.5 miles of an Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   No

7. Is the project located **within** a karst area?

   No

8. Is there *any* suitable[1] summer habitat for Indiana Bat or NLEB **within** the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the national consultation FAQs.

   Yes

9. Will the project remove *any* suitable summer habitat[1] and/or remove/trim any existing trees **within** suitable summer habitat?

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   Yes

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

    No

11. Have presence/probable absence (P/A) summer surveys[1][2] been conducted[3][4] **within** the suitable habitat located within your project action area?

[1] See the Service's summer survey guidance for our current definitions of suitable habitat.

[2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

[3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

[4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

No

12. Does the project include activities **within documented NLEB habitat**[1][2]?

[1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

[2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

No

13. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

Yes

14. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

B) During the inactive season

15. Has a visual emergence survey[1] been conducted?

    [1] Refer to the summer survey guidance

    No

16. Do you plan on conducting a visual emergence survey prior to removing trees[1]?

    [1] If bats are detected during a visual emergence survey conducted in suitable but **undocumented** habitat, this consultation will no longer be valid and a new consultation will be conducted through IPaC with the habitat now considered as **documented** habitat.

    No

17. Are *any* trees being removed **greater than** 9 inches diameter at breast height (dbh)?

    Yes

18. Will the tree removal alter *any* **documented** Indiana bat or NLEB roosts and/or alter any surrounding summer habitat **within** 0.25 mile of a documented roost?

    No

19. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

    Yes

20. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

    No

21. Are *all* trees that are being removed clearly demarcated?

    Yes

22. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

    No

23. Does the project include maintenance of the surrounding landscape at existing facilities (e.g., rest areas, stormwater detention basins)?

    No

24. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    No

25. Does the project include slash pile burning?

No

26. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

Yes

27. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

Yes

28. Has a bridge assessment[1] been conducted **within** the last 24 months[2] to determine if the bridge is being used by bats?

[1] See User Guide Appendix D for bridge/structure assessment guidance

[2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

Yes

SUBMITTED DOCUMENTS

- *Conway 15864 Bridge Inspection.pdf https://ecos.fws.gov/ipac/project/PTP67VS75NGJTMGOVNQIJD2ZUA/projectDocuments/11097313*

29. Did the bridge assessment detect *any* signs of bats roosting in/under the bridge (bats, guano, etc.)?

Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

No

30. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

No

31. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    No

32. Will the project involve the use of **temporary** lighting *during* the active season?

    Yes

33. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting will be used?

    Yes

34. Will the project install new or replace existing **permanent** lighting?

    No

35. Does the project include percussives or other activities (**not including tree removal/ trimming or bridge/structure work**) that will increase noise levels above existing traffic/ background levels?

    No

36. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge or structure removal, replacement, and/or maintenance, lighting, or use of percussives, limited to actions that DO NOT cause any stressors to the bat species, including as described in the BA/BO (i.e. activities that do not involve ground disturbance, percussive noise, temporary or permanent lighting, tree removal/trimming, nor bridge/ structure activities)?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    Yes

37. Will the project raise the road profile **above the tree canopy**?

    No

38. Are the project activities that are not associated with habitat removal, tree removal/ trimming, bridge removal, replacement, and/or maintenance, structure removal, replacement, and/or maintenance, and lighting, consistent with a No Effect determination in this key?

    Automatically answered

    Yes, other project activities are limited to actions that DO NOT cause any stressors to the bat species as described in the BA/BO

39. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the tree removal/trimming that occurs outside of the active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost

40. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

Automatically answered

Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

41. **General AMM 1**

Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

Yes

42. **Tree Removal AMM 1**

Can *all* phases/aspects of the project (e.g., temporary work areas, alignments) be modified, to the extent practicable, to avoid tree removal[1] in excess of what is required to implement the project safely?

Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable. Projects may still be NLAA as long as Tree Removal AMMs 2, 3, and 4 are implemented and LAA as long as Tree Removal AMMs 3, 5, 6, and 7 are implemented.

[1] The word "trees" as used in the AMMs refers to trees that are suitable habitat for each species within their range. See the USFWS' current summer survey guidance for our latest definitions of suitable habitat.

Yes

43. **Tree Removal AMM 2**

Can *all* tree removal activities be restricted to when Northern long-eared bats are not likely to be present (e.g., the inactive season)[1]?

[1] Coordinate with the local Service Field Office for appropriate dates.

Automatically answered

Yes

44. **Tree Removal AMM 3**

Can tree removal be limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits)?

Yes

45. **Tree Removal AMM 4**

Can the project avoid cutting down/removal of *all* (1) **documented**[1] Indiana bat or NLEB roosts[2] (that are still suitable for roosting), (2) trees **within** 0.25 miles of roosts, and (3) documented foraging habitat any time of year?

[1] The word documented means habitat where bats have actually been captured and/or tracked.

[2] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

Yes

46. **Lighting AMM 1**

Will *all* **temporary** lighting used during the removal of suitable habitat and/or the removal/trimming of trees within suitable habitat be directed away from suitable habitat during the active season?

Yes

47. **Lighting AMM 1**

Will *all* **temporary** lighting be directed away from suitable habitat during the active season?

Yes

Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

   Yes

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

   No

3. How many acres[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   1

4. How many acres[1] of trees are proposed for removal between 100-300 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0

5. Please describe the proposed bridge work:

   Replace and realign the existing bridge carrying US Route 302 over Conway Lake Outlet in the Town of Conway

6. Please state the timing of all proposed bridge work:

   Active season

Avoidance And Minimization Measures (AMMs)

These measures **were accepted** as part of this determination key result:

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

LIGHTING AMM 1

Direct temporary lighting away from suitable habitat during the active season.

TREE REMOVAL AMM 1

Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal.

TREE REMOVAL AMM 2

Apply time of year restrictions for tree removal when bats are not likely to be present, or limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of existing road/ rail surface and **outside of documented** roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed.

TREE REMOVAL AMM 3

Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

TREE REMOVAL AMM 4

Do not remove **documented** Indiana bat or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or
documented foraging habitat any time of year.

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on February 05, 2018. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

New Hampshire DOT
Department of Transportation

CHRISTOPHER D. CLEMENT, SR.
COMMISSIONER

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

JEFF BRILLHART, P.E.
ASSISTANT COMMISSIONER

RECEIVED
MAY 06 2014

CONWAY
X-A001(161)
15864
RPR 3256

No Historic Properties Affected Memo

Pursuant to meetings on January 10, 2013 and May 2, 2014, and for the purpose of compliance with regulations of the National Historic Preservation Act and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historical and archaeological resources with plans to replace a 1955 concrete Tee beam bridge (158/137), which carries US Route 302 over Mill Brook (Conway Lake Outlet) in the Town of Conway, New Hampshire.

Pursuant to 36 CFR 800.4, the bridge was inventoried and on October 10, 2013 determined not eligible for listing on the National Register of Historic Places. Phase IA and IB archaeological investigations, which occurred along the project area, were completed and no further survey was recommended.

Based on a review pursuant to 36 CFR 800.4(1), we agree that no historic or archaeological resources will be affected in the area of potential effect.

In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

5/15/14
Patrick Bauer, Administrator — Date
Federal Highway Administration

5/2/2014
Jill Edelmann — Date
Cultural Resources Manager

Concurred with by the NH State Historic Preservation Officer:

5/8/14
Elizabeth H. Muzzey — Date
State Historic Preservation Officer
NH Division of Historical Resources

c.c. Chris St. Louis, NHDHR
Jamie Sikora, FHWA
Christine Perron, DOT
David Scott, DOT

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US Army Corps of Engineers
New England District

U.S. Army Corps of Engineers
New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres.		X
2.6 What is the size of the existing impervious surface area?	1.18 acres	
2.7 What is the size of the proposed impervious surface area?	1.29 acres	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	52.46%	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		X
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.	X	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	X	

4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	N/A	N/A
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

Figure 1. View of project area looking west from east of the existing bridge carrying US Route 302 over Conway Lake Outlet. Proposed project will shift the bridge approximately 20' to the north with associated roadway work to tie in the proposed alignment. (Christine Perron, July 2013)

Figure 2. View of project area and existing crossing looking west from east of the existing bridge carrying US Route 302 over Conway Lake Outlet. (Meli Dube, February 2018)

Figure 3. View of Impact Areas A, B, C, H, I, J, K from northeast bank looking west towards northwest bank and proposed bridge location (20' shift to the north). (Christine Perron, July 2013)

Figure 4. View of Impact Areas C, B and A from northwest bank looking east towards northeast bank and proposed bridge location (20' shift to the north). (Christine Perron, July 2013)

Figure 5. View of Impact Area C from the existing bridge looking north (downstream) at the outlet of Conway Lake Outlet from the existing crossing. (Christine Perron, July 2013)

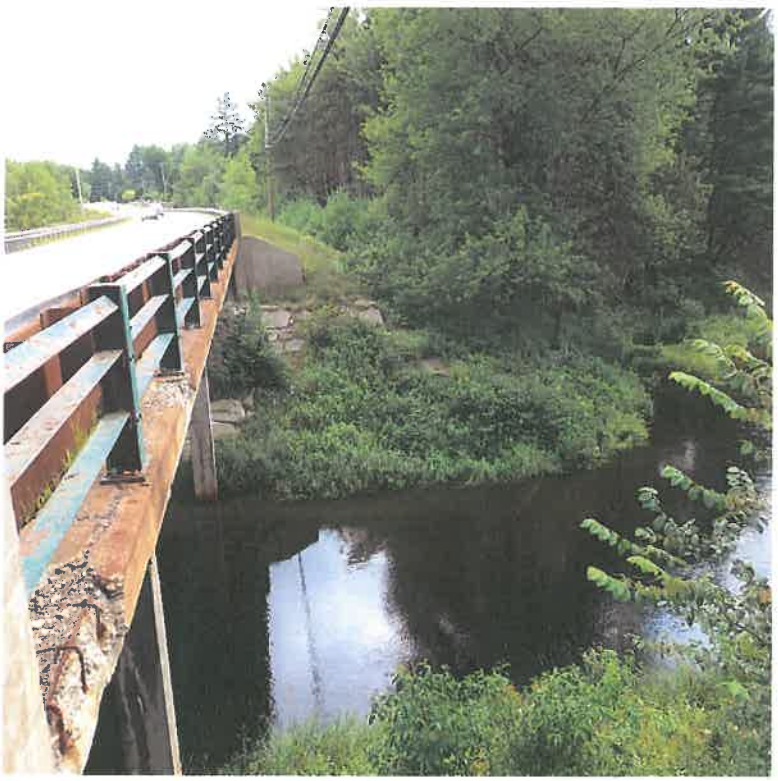


Figure 6. View of Impact Areas C, B, A from the southwest bank looking east towards southeast bank. (Christine Perron, July 2013)

Figure 7. View of Impact Areas G, F, C, B and A from southwest bank looking east towards southeast bank. (Christine Perron, July 2013).

Figure 8. View of Impact Areas F and G from the southeast bank looking west towards the southwest bank. (Meli Dube, February 2018)

Figure 8. View of looking south (upstream) at the inlet of Conway Lake Outlet from the existing crossing. (Christine Perron, July 2013)

Figure 9. View of Impact Areas G, F, E, C, D, B and A from the western abutment looking east at the existing piers to be removed and the channel of the Conway Lake Outlet as it flows under US Route 302 at the existing bridge location. (Meli Dube, February 2018)

CONSTRUCTION SEQUENCE

1. If necessary, cofferdams will be placed in the brook to dewater all work areas. Erosion controls will be installed prior to the commencement of work.

2. Phase 1 of the concrete substructure and superstructure will be constructed. Traffic will be on the existing bridge.

3. Phase 2 of the substructure and superstructure will be constructed, and the exterior girder of the existing bridge will be removed. Traffic will be on the proposed bridge and the existing bridge.

4. The final phase of the substructure and superstructure will be constructed and the existing bridge will be completely removed. Traffic will be on the proposed bridge.

5. The piers will be removed from the streambed to three feet below the existing streambed and the final riprap will be placed to limits shown on wetland plans.

6. Cofferdams and erosion controls will be removed and the site will be restored to its original condition.

Note:

Project will use and maintain DES Best Management Practices at all stages of construction.

PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

The 15864 project includes the replacement of bridge No. 158/137, US Route 302 over Conway Lake Outlet. Pursuant to PART Wt 404 Criteria for Shoreline Stabilization, the following addresses each codified section of the Administrative Rules:

Env-Wt 404.01 Least Intrusive Method. Shoreline stabilization shall be by the least intrusive but practical method.

The riverbank stabilization treatment proposed is the least intrusive construction method necessary to minimize the disruption to the existing shorelines. The stone treatment can be reasonably constructed utilizing general highway construction methods. As much existing riprap as possible will remain undisturbed and if disturbed will be reused so it may be used to protect the proposed bridge abutments. In all cases, new riprap was kept to the minimum required as detailed in FHWA HEC-18 and HEC-23.

Env-Wt 404.02 Diversion of Water. Diversion of stormwater run-off often provides effective and low maintenance erosion protection, and shall be used to the maximum extent practical.

Proposed roadway drainage will allow storm water run-off to be diverted so that it will flow over vegetated areas, insofar as possible, prior to entering Conway Lake Outlet. This will minimize erosion of the shoreline.

Env-Wt 404.03 Vegetative Stabilization.
(a) Natural vegetation shall be left intact to the maximum extent possible. If space and soil conditions allow, unstable banks shall be cut back to a flatter slope, seeded, and replanted with native, non-invasive trees and shrubs.

Natural vegetation will be left undisturbed to the maximum extent possible. The only locations being disturbed are the impacted areas on the plan for construction. All newly developed slopes and disturbed areas will have humus and seed applied for turf establishment, which will help stabilize the project area.

(b) If space relative to the highest observable tide line, water turbulence, and soil conditions allow, the project shall include vegetation of existing sand beach or dunes or construction of vegetated sand dunes.

N/A

Env-Wt 404.04 Rip-rap.
(a) Rip-rap applications shall be considered only where the applicant demonstrates that anticipated turbulence, flows, restricted space, or similar factors render vegetative and diversion methods physically impractical.

Stone fill, as proposed, is shown on the attached plans to protect the channel and bank as necessary. Stable embankments are necessary to maintain the structural integrity of the bridge during all flow conditions.

(b) Applications for rip-rap shall include:
(1) Designation of a minimum and maximum stone size;
(2) Gradation;
(3) Minimum rip-rap thickness;
(4) Type of bedding for stone;
(5) Cross-section and plan views of the proposed installation;

NH State Specifications for Stone Fill (Item 585.21) provide the description of the material size, gradation, and construction requirements for the proposed riprap. The enclosed riprap cross section shows proposed thickness, Geotextile (Item 593), and other details. Bedding for the stone fill will consist of natural ground excavated to the proposed underside of the stone fill in conformance with Section 203 of the Specifications.

(6) Sufficient plans to clearly indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline; and

Enclosed are plan sheets to sufficiently indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline.

(7) A description of anticipated turbulence, flows, restricted space, or similar factors that would render vegetative and diversion methods physically impractical.

Stone fill is recommended for the limits shown on the attached plans to protect the banks from erosion during flood flows, from scour during all flows, and slopes greater than 2:1 have difficulty supporting vegetation.

(c) Applications to use rip-rap adjacent to great ponds or water bodies where the state holds fee simple ownership shall include a stamped surveyed plan showing the location of the normal high water shoreline and the footprint of the proposed project.

This project is not located adjacent to a great pond or water body where the state holds fee simple ownership.

(d) Rip-rap shall be located shoreward of the normal high water shoreline, where practical, and shall not extend more than 2 feet lakeward of that line at any point.

Stone fill is proposed to extend down to and adequately keyed into the channel bottom to prevent possible undermining of the slope.

(e) Stamped engineering plans shall be provided as part of any application for rip-rap in excess of 100 linear feet along the bank of a stream or river.

The enclosed plan has been stamped by a professional engineer.

SECTION 585 -- STONE FILL

Description

1.1 This work shall consist of furnishing and placing a dense stone fill at the locations shown on the plans or ordered. Stone Fill is typically required for stability of embankment fill and soil cut slopes steeper than 2 horizontal to 1 vertical, although slopes at a flatter grade with water seepage or subject to submergence, such as in water quality treatment basins, could require stone fill. Stone fill is also used for erosion protection at pipe outlets, in drainage channels and for other drainage structures where expected water flows and velocities may require it.

Materials

2.1 Stone for stone fill shall be approved quarry stone, or broken rock of a hard, sound, and durable quality. The stones and spalls shall be so graded as to produce a dense fill with a minimum of voids.

2.1.1 Class A stone shall be irregular in shape with approximately 50 percent of the mass having a minimum volume of 12 ft^3, approximately 30 percent of the mass ranging between 3 and 12 ft^3, approximately 10 percent of the mass ranging between 1 and 3 ft^3, and the remainder of the mass composed of spalls.

2.1.2 Class B stone shall be irregular in shape with approximately 50 percent of the mass having a minimum volume of 3 ft^3, approximately 40 percent of the mass ranging between 1 and 3 ft^3, and the remainder of the mass composed of spalls.

2.1.3 Class C stone shall consist of clean, durable fragments of ledge rock of uniform quality, reasonably free from thin or elongated pieces. The stone shall be made from rock which is free from topsoil and other organic material. The stone shall be graded as follows:

Sieve Size	Percentage by Weight Passing
12 in	100
4 in	50 - 90
1-1/2 in	0 - 30
3/4 in	0 - 10

2.1.4 Class D stone shall conform to Table 520-3 - Coarse Aggregate, Standard Stone Size No. 467.

2.1.5 Spalls for filling voids shall be stones or broken rock ranging downward from a maximum size of 1 ft^3.

2.2 Gravel blanket material shall conform to 209.2.1.2.

2.3 Geotextile shall conform to Section 593.

Construction Requirements

3.1 Stones and spalls for stone fill shall be deposited and graded to eliminate voids and obtain a dense mass throughout the course. The spalls shall be tamped into place using an equipment bucket or other approved method.

3.1.1 When stone fill is placed on a slope, the stones shall be deposited in such a manner as not to dislodge the underlying material unnecessarily.

3.1.2 When stone fill is placed on a geotextile, it shall be deposited in a manner to maintain the integrity of the geotextile.

3.2 When gravel blanket is shown or ordered, the gravel shall be placed in layers not exceeding 12" in depth unless otherwise ordered.

3.3 The completed surface shall approximate the lines and grades shown or ordered. When ordered, stone placed over 1 ft. outside or above such lines and grades shall be removed.

3.4 Stone fill (Bridge) shall be placed within the limits shown on the plans.

Method of Measurement

4.1 Stone fill will be measured by the cubic yard and in accordance with 109.01.

Basis of Payment

5.1 The accepted quantity of stone fill of the class specified will be paid for at the Contract unit price per cubic yard complete in place.

5.2 Gravel blanket material specified or ordered will be paid for under Section 209.

5.3 Geotextile specified or ordered will be paid for under Section 593.

5.4 The accepted quantity of excavation required for placing stone fill and for placing any underlying gravel blanket will be paid for under the item of excavation being performed. Excavation herein refers only to excavation of original ground or to material ordered removed not shown on the plans.

5.5 Free borrow will not be required to replace the accepted quantity of stone obtained from the excavation. However, when the plans do not call for borrow, but the quantity of material removed from excavation for use under this item requires the Contractor to furnish borrow to complete the work, such borrow will be subsidiary.

Pay items and units:

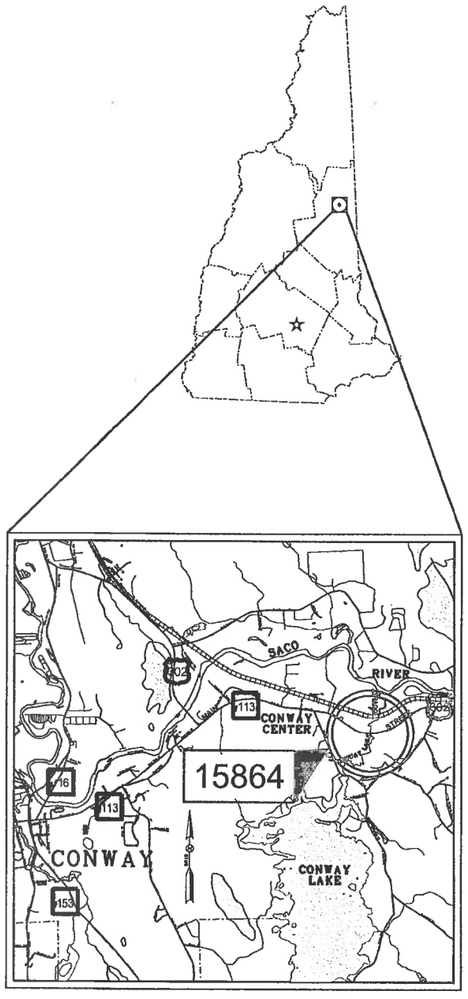
585.1	Stone Fill, Class A	Cubic Yard
585.2	Stone Fill, Class B	Cubic Yard
585.21	Stone Fill, Class B (Bridge)	Cubic Yard
585.3	Stone Fill, Class C	Cubic Yard
585.4	Stone Fill, Class D	Cubic Yard

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

WETLANDS PLANS
FEDERAL AID PROJECT

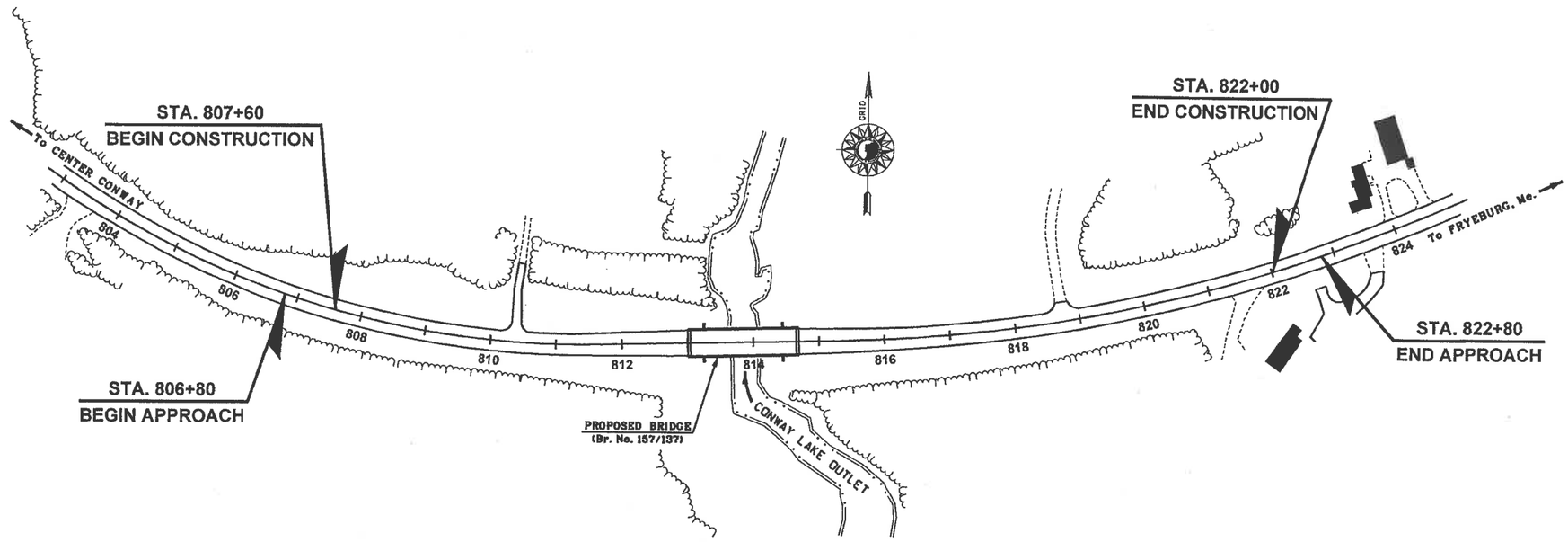
X-A000(161)
N.H. PROJECT NO. 15864
U.S. ROUTE 302 & N.H. Route 113

DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 13	9200
AVERAGE DAILY TRAFFIC 20 37	13616
PERCENT OF TRUCKS	7%
DESIGN SPEED	50mph
LENGTH OF PROJECT	1600 feet



LOCATION MAP

1 ½ 0 1 2 mi.
GRAPHIC SCALE



INDEX OF SHEETS

DRAWN BY ANW DATE 12/17
CHECKED BY XX DATE XX

WETLANDS DELINEATED BY NH DEPT. OF TRANSPORTATION

DELINEATED BY CHRISTINE PERRON AND
AMY LAMB ON JULY 24, 2013

BY: DATE:

THESE PLANS MEET THE REQUIREMENTS OF ENV-WT 404.
CRITERIA FOR SHORELINE STABILIZATION

STATE OF NEW HAMPSHIRE
ROBERT L. CARLEY
No. 7804
LICENSED
PROFESSIONAL ENGINEER

BY: DATE: 3/9/2018

TOWN OF CONWAY
COUNTY OF CARROLL
SCALE: 1" = 100'
FOR CONSTRUCTION DETAILS - SEE CONSTRUCTION PLANS

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:
DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:
ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:
DIVISION ADMINISTRATOR — DATE

FILE NO. 125-2-1

SUBDIRECTORY	.DGN LOCATOR	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
Prj/Frontsheets	15864FSW	X-A000(161)	15864	1	8

GENERAL

EDGE OF PAVEMENT — PROPOSED ROADWAY
TRAVELED WAY — existing roadway
(pavement removed outside slope lines)

DRIVEWAYS — (label surface type)

BUILDINGS — (building to be removed)
(label house or type of building)

FOUNDATION — (label type)

LEACH FIELD — leach field

BRIDGE CROSSINGS — STREAM — OVERPASS

STEPS AND WALK — (label type)

INTERMITTENT WATER COURSE

SHORE LINE — river/stream — pond — (label name of water body)

POTENTIAL WET AREA SYMBOL

BRUSH OR WOODS LINE

TREES (PLANS) — (deciduous) (coniferous) (stump)

TREE OR STUMP (CROSS-SECTIONS) — (show station, circumference in feet & type)

HEDGE — (label type)

MONITORING WELL — mon W

WELL — W

FLAG POLE — fp

ORIGINAL GROUND (TYPICALS)

ROCK OUTCROP

ROCK LINE (TYPICALS & SECTIONS ONLY)

GUARDRAIL (label type) — existing — PROPOSED — bgr — cgr

JERSEY BARRIER

CURB (LABEL TYPE)

STONE WALL

RETAINING WALL (LABEL TYPE) — (points toward retained ground)

FENCE (LABEL TYPE)

SIGNS — (single post) — (double post)

GAS PUMP — gp

FUEL TANK (ABOVE GROUND) — ft (label size & type)

STORAGE TANK FILLER CAP — fc

SEPTIC TANK — S

GRAVE — gr

MAILBOX — mb

VENT PIPE — vp

SATELLITE DISH ANTENNA — da

PHONE — ph

GROUND LIGHT/LAMP POST — gl — lp

BORING LOCATION — B

TEST PIT — TP

INTERSTATE NUMBERED HIGHWAY — 293

UNITED STATES NUMBERED HIGHWAY — 3

STATE NUMBERED HIGHWAY — 102

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE — 2 PUB2E

DELINEATED WETLAND — DW
ORDINARY HIGH WATER — OHW
TOP OF BANK — TOB
TOP OF BANK & ORDINARY HIGH WATER — TOBOHW
NORMAL HIGH WATER — NHW
WIDTH AT BANK FULL — WBF
PRIME WETLAND — PWET
PRIME WETLAND 100' BUFFER — PWET100
NON-JURISDICTIONAL DRAINAGE AREA — NJDA
COWARDIN DISTINCTION LINE — COL
TIDAL BUFFER ZONE — TBZ
DEVELOPED TIDAL BUFFER ZONE — DTBZ
HIGHEST OBSERVABLE TIDE LINE — HOTL
MEAN HIGH WATER — MHW
MEAN LOW WATER — MLW
VERNAL POOL — VP
SPECIAL AQUATIC SITE — SAS
REFERENCE LINE — REF
WATER FRONT BUFFER — WB50
NATURAL WOODLAND BUFFER — NWB150
PROTECTED SHORELAND — PS250
INVASIVE SPECIES LABEL — I.S. I — I.S. II
INVASIVE SPECIES — INV

FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY — FP500
100 YEAR FLOODPLAIN BOUNDARY — FP100
FLOODWAY — FW

ENGINEERING

CONSTRUCTION BASELINE — 30 — 31 — 32

PC. PT. POT (ON CONST BASELINE)

PI (IN CONSTRUCTION BASELINES)

INTERSECTION OR EQUATION OF TWO LINES

ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)

PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)

CLEARING LINE — SLOPE LINE — SLOPE LINE — CLEARING LINE
SLOPE LINE

SLOPE LINE (FILL)

SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:
ORIGINAL GROUND ELEVATION (LEFT) — 72.5
FINISHED GRADE ELEVATION (RIGHT) — 79.14

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	stdsymb1_2	15864	2	8

DRAINAGE

MANHOLE

CATCH BASIN — cb

DROP INLET — di

(existing) (PROPOSED)

DRAINAGE PIPE (existing) (label size & type)

DRAINAGE PIPE (PROPOSED)

UNDERDRAIN (existing) W/ FLUSHING BASIN — fb — (label size & type)

UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN

show direction of flow

HEADER (existing & PROPOSED) (with stone outlet protection)

END SECTION (existing & PROPOSED) METAL or PLASTIC

RCP

OPEN DITCH (PROPOSED)

EROSION CONTROL/ STONE SLOPE PROTECTION

BOUNDARIES / RIGHT-OF-WAY

RIGHT-OF-WAY LINE (label type)

RR RIGHT-OF-WAY LINE

PROPERTY LINE

PROPERTY LINE (COMMON OWNER) — Z — Z —

TOWN LINE — BOW / CONCORD

COUNTY LINE — COOS / GRAFTON

STATE LINE — MAINE / NEW HAMPSHIRE

NATIONAL FOREST

CONSERVATION LAND — LC — LC —

BENCH MARK / SURVEY DISK

BOUND — bnd — (PROPOSED)

STATE LINE/ TOWN LINE MONUMENT — S/L — T/L

NHDOT PROJECT MARKER

IRON PIPE OR PIN — ip

DRILL HOLE IN ROCK — dh

TAX MAP AND LOT NUMBER — 156 / 14 — 1642/341 — 6.80 Ac.±

PROPERTY PARCEL NUMBER — 12

HISTORIC PROPERTY — H

UTILITIES

existing PROPOSED

TELEPHONE POLE

POWER POLE

JOINT OCCUPANCY

MISCELLANEOUS/UNKNOWN POLE

GUY POLE OR PUSH BRACE

(plot point at face not center of symbol)

LIGHT POLE

LIGHT ON POWER POLE

LIGHT ON JOINT POLE

POLE STATUS: REMOVE, LEAVE, PROPOSED, OR TEMPORARY AS APPLICABLE e.g.:

R L — P+04 25.0' — T+04 25.0'

RAILROAD — (label ownership)

RAILROAD SIGN

RAILROAD SIGNAL

UTILITY JUNCTION BOX — jb — JB

OVERHEAD WIRE — OW — OW — (label type)

UNDERGROUND UTILITIES

WATER (on existing lines label size, type and note if abandoned) — W — W — PW — PW

SEWER — S — S — PS — PS

TELEPHONE — T — T — PT — PT

ELECTRIC — E — E — PE — PE

GAS — G — G — PG — PG

LIGHTING — L — L — PL — PL

INTELLIGENT TRANSPORTATION SYSTEM — ITS — ITS — PITS — PITS

FIBER OPTIC — FO — FO — PFO — PFO

WATER SHUT OFF — WSO — PWSO

GAS SHUT OFF — GSO — PGSO

HYDRANT — PHYD

MANHOLES

SEWER — S — MHS

TELEPHONE — T — MHT

ELECTRICAL — E — MHE

GAS — G — MHG

UNKNOWN — U

TRAFFIC SIGNALS / ITS

existing PROPOSED

MAST ARM (existing) — 30' MA (NOTE ANGLE FROM ⊕)

OPTICOM RECEIVER

OPTICOM STRODE

TRAFFIC SIGNAL

PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT

SIGNAL CONDUIT — C — C — C — PC — PC — PC

CONTROLLER CABINET — cc — CC

METER PEDESTAL — mp — MP

PULL BOX — pb — PB

LOOP DETECTOR (QUADRUPOLE) — (label size)

LOOP DETECTOR (RECTANGULAR) — (label size)

CAMERA POLE (CCTV)

FIBER OPTIC DELINEATOR — fod — FOD

FIBER OPTIC SPLICE VAULT — SVF

ITS EQUIPMENT CABINET — its — ITS

VARIABLE SPEED LIMIT SIGN

DYNAMIC MESSAGE SIGN

ROAD AND WEATHER INFO SYSTEM

CONSTRUCTION NOTES

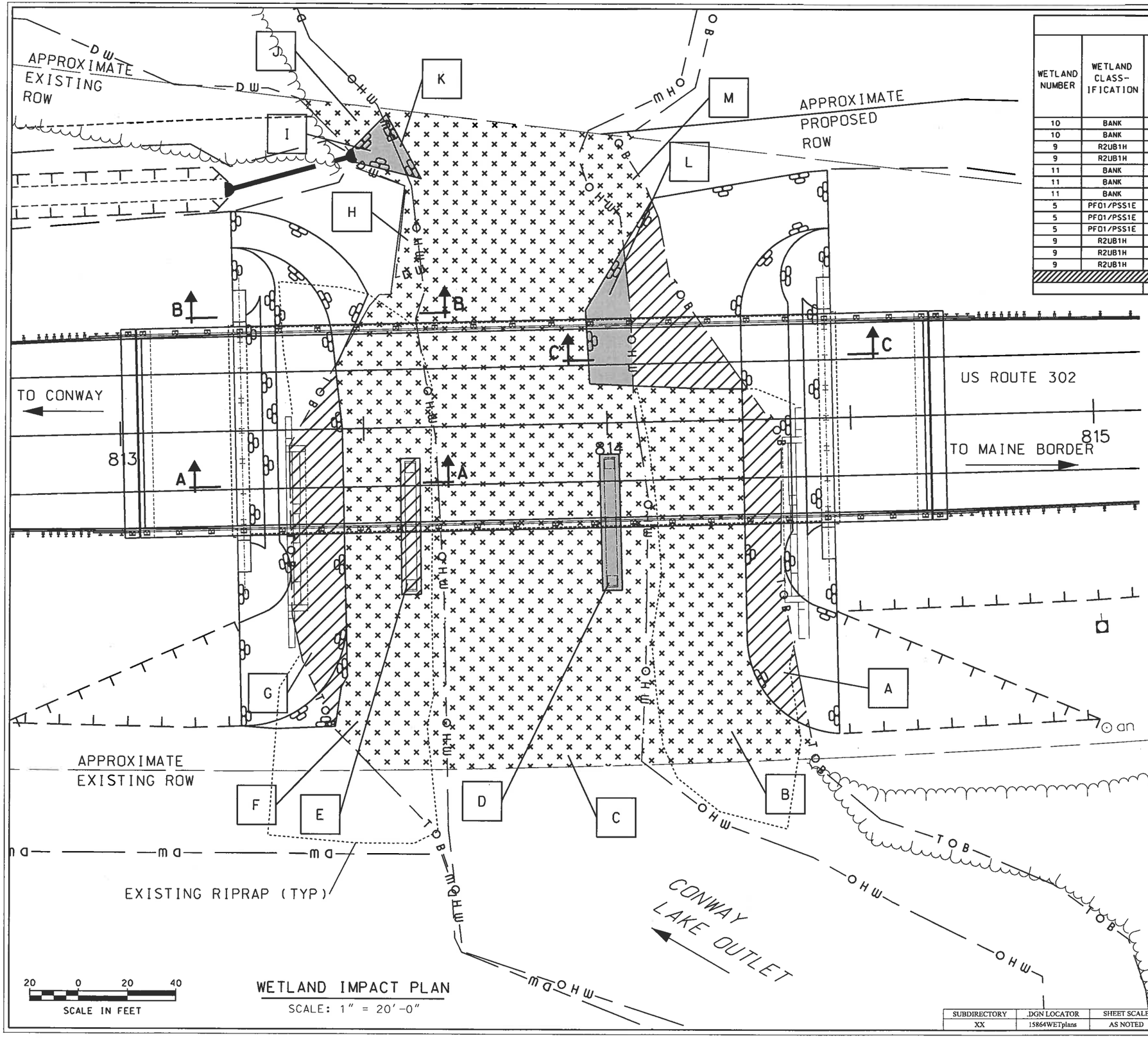
CURB MARK NUMBER - BITUMINOUS	B-1
CURB MARK NUMBER - GRANITE	G-1
CLEARING AND GRUBBING AREA	A
DRAINAGE NOTE	1
EROSION CONTROL NOTE	A
FENCING NOTE	A
GUARDRAIL NOTE	1
ITS NOTE	1
LIGHTING NOTE	A
TRAFFIC SIGNAL NOTE	1

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	stdsymb1_2	15864	3	8



WETLAND IMPACT PLAN

SCALE: 1" = 20'-0"

SCALE IN FEET: 20 0 20 40

WETLAND IMPACT SUMMARY

WETLAND NUMBER	WETLAND CLASS-IFICATION	LOCATION	AREA IMPACTS						LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY		PERMANENT		
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)				BANK LEFT	BANK RIGHT	CHANNEL
			SF	LF	SF	LF	SF	LF	LF	LF	LF
10	BANK	A	958	117							
10	BANK	B					1762	77			
9	R2UB1H	C					5188	133			
9	R2UB1H	D			112	28					
11	BANK	E	112	28							
11	BANK	F					1745	118			
11	BANK	G	634	78							
5	PF01/PSS1E	H					73	30			
5	PF01/PSS1E	I			66	13					
5	PF01/PSS1E	J					87	15			
9	R2UB1H	K			23	15					
9	R2UB1H	L			200	29					
9	R2UB1H	M					178	18			
		TOTAL	1704	223	401	85	9033	391			

PERMANENT IMPACTS: 2105 SF
TEMPORARY IMPACTS: 9033 SF

TOTAL IMPACTS: 11138 SF

N

NOTE: SEE SHEET 6 OF 8, EROSION CONTROL PLAN & SECTIONS FOR SECTIONS A-A, B-B, AND C-C

WETLAND CLASSIFICATION CODES	
PF01/ PSS1E	PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS, / PALUSTRINE, SCURB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATRUATED
R2UB1H	RIVERINE LOWER PERENNIAL UNCONSOLIDATED BOTTOM COBBLE-GRAVEL PERMANENTLY FLOODED
BANK	BANK

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

WETLAND DESIGNATION NUMBER

WETLAND IMPACT LOCATION

WETLAND MITIGATION AREA

MITIGATION

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
XX	15864WETplans	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CONWAY BRIDGE NO. 157\137 STATE PROJECT 15864

LOCATION U.S. ROUTE 302 & N.H. Route 113 over CONWAY LAKE OUTLET

WETLAND IMPACT PLAN

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	ANW	12/17	CHECKED	XXX	XX/XX
	DRAWN	ANW	12/17	CHECKED	XXX	XX/XX
	QUANTITIES	XXX	XX/XX	CHECKED	XXX	XX/XX
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS
	REV. DATE		----------		4	8

BRIDGE SHEET XX OF XX

FILE NUMBER 125-2-1

EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
   1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
   1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
   1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
   1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
   1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WQ 1500 REQUIREMENTS (HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM)
   1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.

2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
   2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
   2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
   2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
   2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
      (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
      (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
      (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
      (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
   2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
   2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
   2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
   2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30" AND MAY 1" OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
      (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
      (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
      (C) AFTER NOVEMBER 30" INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
      (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME. UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WQ 1505.02 AND ENV-WQ 1505.05.
      (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30".

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
   3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
   3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
   3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
   3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
   3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.

4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
   4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
   4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
   4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1" THROUGH NOVEMBER 30". OR EXCEED ONE ACRE DURING WINTER MONTHS. UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.

5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
   5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
   5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS. SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
   5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
   5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
   5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS. VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.

6. PROTECT SLOPES:
   6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
   6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
   6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
   6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.

7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
   7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
   7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.

8. PROTECT STORM DRAIN INLETS:
   8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
   8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
   8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
   8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.

9. SOIL STABILIZATION:
   9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
   9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
   9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR. IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
   9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.

10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
    10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WQ 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
    10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
    10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
    11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
    11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
    11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
    11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
    11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
    11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
    11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
    11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
    11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
    12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500: ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
    12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
    12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
    12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
    12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
    12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
    12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.

13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
    13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
    13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
    13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
    13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.

14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
    14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
    14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1. IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
    14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WQ 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES[2]				ROLLED EROSION CONTROL BLANKETS[3]			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES[1]												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES*	YES*	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

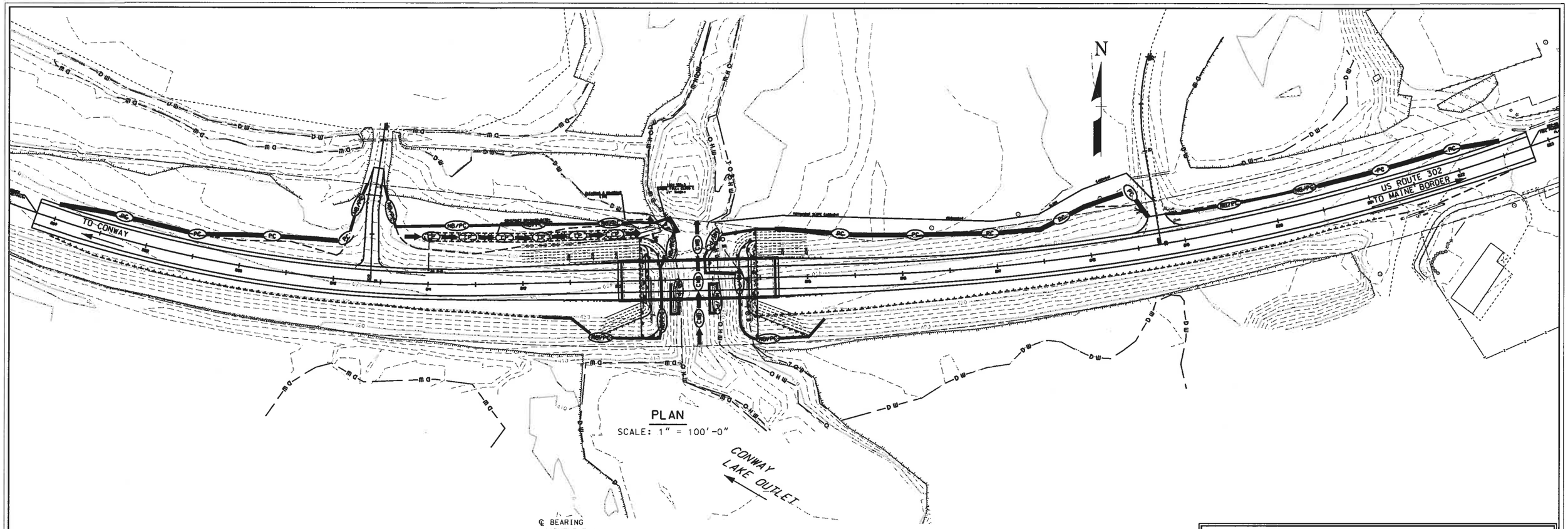
ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

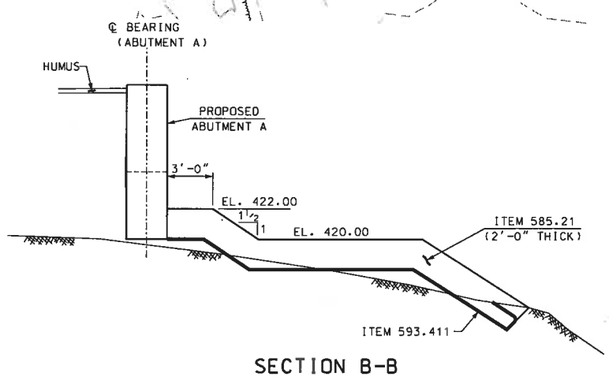
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	erosstrat	15864	5	8



PLAN
SCALE: 1" = 100'-0"



SECTION B-B
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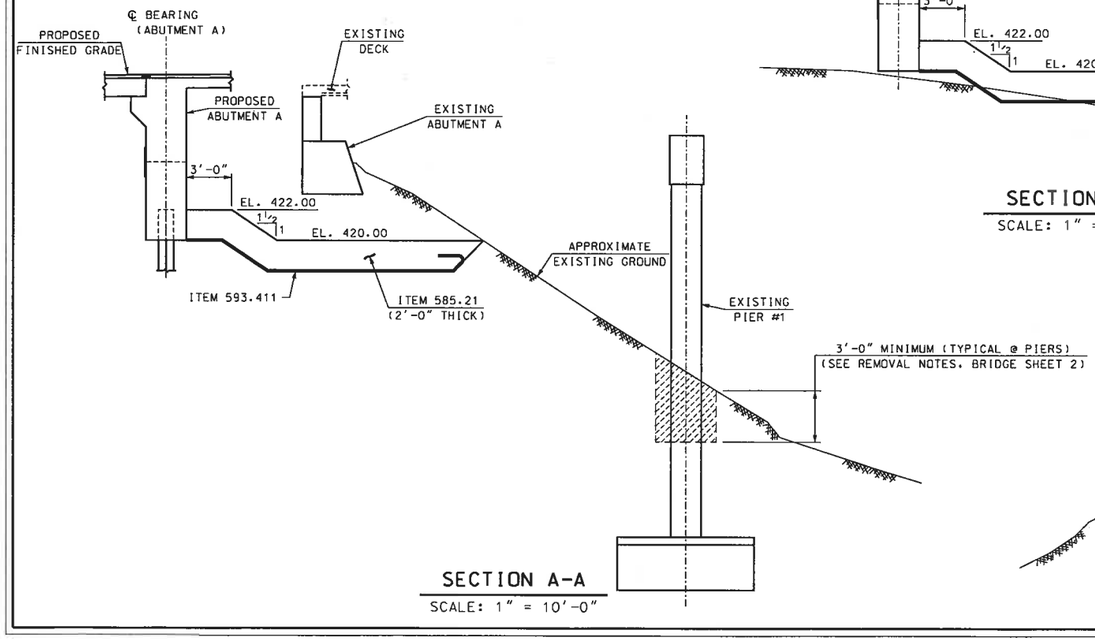

SECTION A-A
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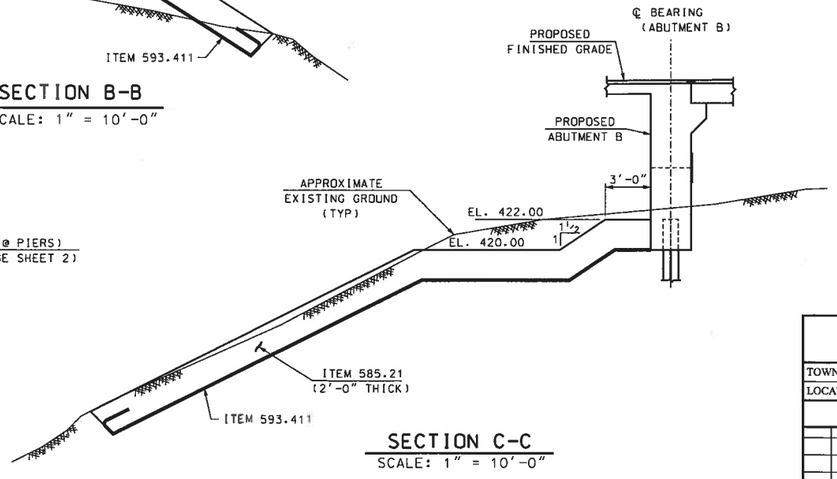


SECTION C-C
SCALE: 1" = 10'-0"

EROSION CONTROL PLAN LEGEND

PC	PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
NB/PC	NATURAL BUFFER/PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
CP	CHANNEL PROTECTION
	STONE CHECK DAMS
	STRAW WATTLES
	CHANNEL MATTING
	CLASS D EROSION STONE
	CLASS C STONE
CWB	CLEAN WATER BYPASS
	PUMP THROUGH PIPE
	DRAIN THROUGH PIPE OR CHANNEL

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
XX	15864EROplans	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CONWAY BRIDGE NO. 157\137 STATE PROJECT 15864

LOCATION U.S. ROUTE 302 & N.H. Route 113 over CONWAY LAKE OUTLET

EROSION CONTROL PLAN & SECTIONS

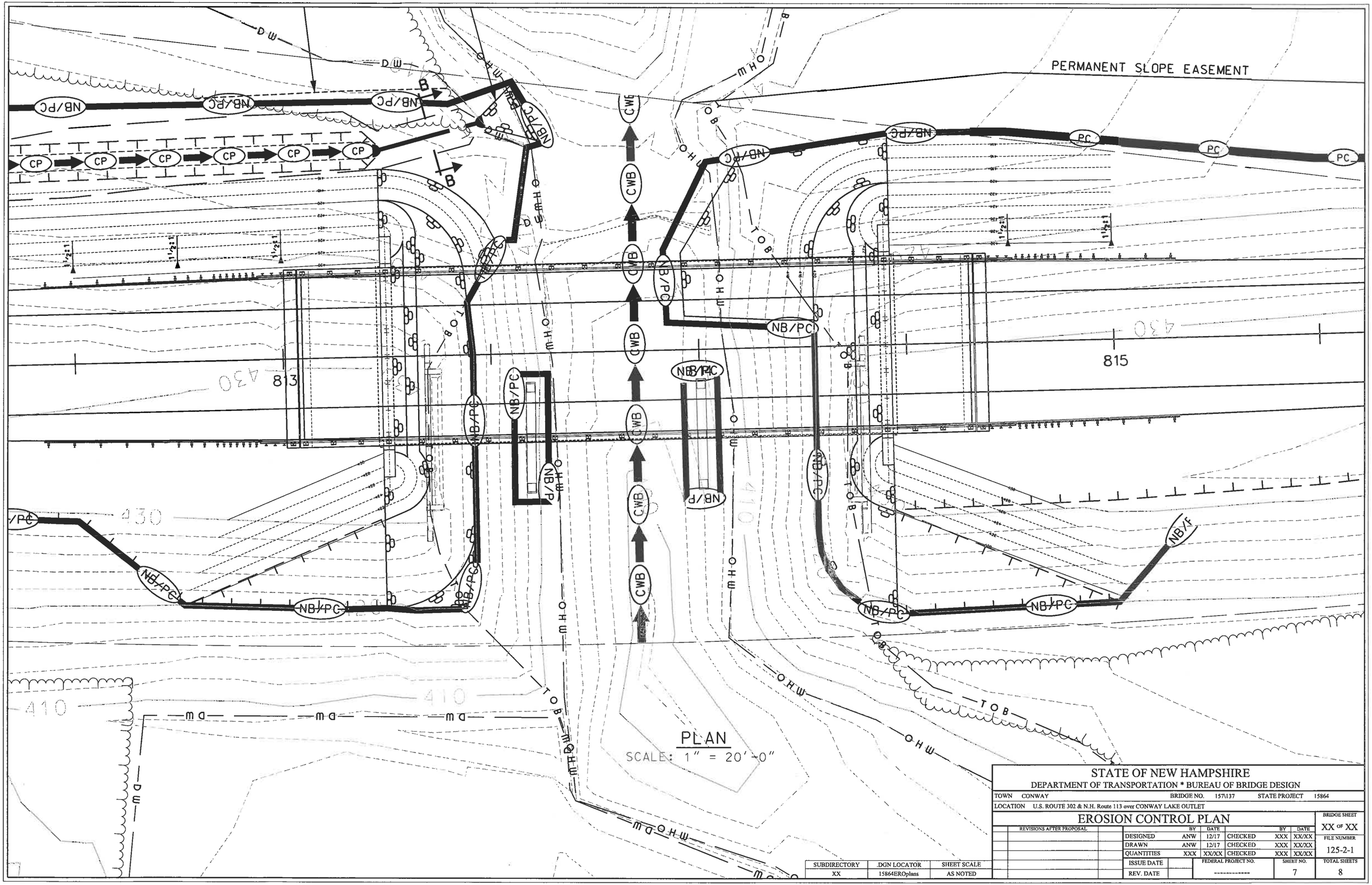
BRIDGE SHEET: XX OF XX

REVISIONS AFTER PROPOSAL	BY	DATE

DESIGNED	ANW	12/17	CHECKED	XXX	XX/XX
DRAWN	ANW	12/17	CHECKED	XXX	XX/XX
QUANTITIES	XXX	XX/XX	CHECKED	XXX	XX/XX
ISSUE DATE			FEDERAL PROJECT NO.		SHEET NO.
REV. DATE			----------		6

FILE NUMBER: 125-2-1

TOTAL SHEETS: 8



SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
XX	15864EROplans	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CONWAY BRIDGE NO. 157\137 STATE PROJECT 15864

LOCATION U.S. ROUTE 302 & N.H. Route 113 over CONWAY LAKE OUTLET

EROSION CONTROL PLAN

BRIDGE SHEET: XX OF XX

REVISIONS AFTER PROPOSAL

	BY	DATE		BY	DATE
DESIGNED	ANW	12/17	CHECKED	XXX	XX/XX
DRAWN	ANW	12/17	CHECKED	XXX	XX/XX
QUANTITIES	XXX	XX/XX	CHECKED	XXX	XX/XX

ISSUE DATE
REV. DATE

FEDERAL PROJECT NO. ----------

SHEET NO. 7

FILE NUMBER 125-2-1

TOTAL SHEETS 8

APPROXIMATE EXISTING ROW

APPROXIMATE PROPOSED ROW

TO CONWAY

US ROUTE 302

TO MAINE BORDER

813

814

815

N

CONWAY LAKE OUTLET

APPROXIMATE EXISTING ROW

EXISTING RIPRAP (TYP)

CONWAY LAKE OUTLET

20 0 20 40

SCALE IN FEET

PLAN

SCALE: 1" = 20'-0"

SUBDIRECTORY	.DGN LOCATOR	SHEET SCALE
XX	15864CTRplans	AS NOTED

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN CONWAY BRIDGE NO. 157\137 STATE PROJECT 15864

LOCATION U.S. ROUTE 302 & N.H. Route 113 over CONWAY LAKE OUTLET

TWO FOOT CONTOUR PLAN

BRIDGE SHEET: XX OF XX

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	ANW	12/17	CHECKED	XXX	XX/XX
	DRAWN	ANW	12/17	CHECKED	XXX	XX/XX
	QUANTITIES	XXX	XX/XX	CHECKED	XXX	XX/XX
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS
	REV. DATE		----------		8	8

FILE NUMBER: 125-2-1